Dar Al Riyadh Insight #85
Design Review - Introduction

Dar Al Riyadh Insights reflect the knowledge and experience of our Board, executives and staff in leading and providing PMC, design and construction management services. Dar Al Riyadh believes in the importance of broadly sharing knowledge with our clients and staff to improve project outcomes for the benefit of the Kingdom of Saudi Arabia.

Introduction

The engineer is responsible for the quality and completeness of the designs that the project team produces. The engineering and design process begins with the owner's project requirements (OPR) and those of applicable government regulatory agencies. These requirements are then expanded to encompass a more comprehensive basis of design or so-called expanded basis of design (BOD^X, see NAC Executive Insight, Business Basis of Design) that includes construction and operations & maintenance (O&M) requirements to be incorporated in and influence the developed design. The design process translates these design inputs and criteria into the final design through a staged design process with design reviews at key stage gates.

The quality of the design product, in the form of specifications, datasheets, drawings, procedures, and building information models (BIM models) is ensured through a combination of strong processes and procedures, positive management controls, and a comprehensive and detailed set of reviews and checks at various stages in the process. The identification of work instructions, checklists, and who is responsible for preparing, checking, and approving documents is typically contained in a Design Activity Plan (predominantly single discipline projects) or Discipline Activity Plans (multi-discipline projects).

Project specifications, as required, are typically prepared by the discipline lead, who is also responsible for reviewing existing client specifications to determine fit-for-purpose and suitability for the project. These specifications form the basis for project procurement and engineering.

Design margins may be established for specific systems, structures, components, and equipment to achieve consistency and economy across the project team. A formal design margin table may be issued.

All engineering and design work is performed in accordance with project procedures, specifications, industry codes, and standards. Design outputs are to be clear and comprehensive, and their identification and revision status, authorization, and distribution are controlled in accordance with project procedures that are included in the project procedures manual.

It is against this backdrop that design review occurs.

Design Margin is any adjustment to the design value above what is required by code or to meet performance requirements established in the contract. Cumulative Design Margins are design margins which compound as each discipline applies additional margin to those that have been previously established.